paragraph (3) given the grave national security and societal impact potential of such networks.

(5) Generative adversarial networks are not likely to be utilized as the sole technique of artificial intelligence or machine learning capable of creating credible deepfakes. Other techniques may be developed in the future to produce similar outputs.

**SEC. 3. NSF SUPPORT OF RESEARCH ON MANIPULATED OR SYNTHESIZED CONTENT AND INFORMATION SECURITY.**

The Director of the National Science Foundation, in consultation with other relevant Federal agencies, shall support merit-reviewed and competitively awarded research on manipulated or synthesized content and information authenticity, which may include—

(1) fundamental research on digital forensic tools or other technologies for verifying the authenticity of information and detection of manipulated or synthesized content, including content generated by generative adversarial networks;

(2) fundamental research on technical tools for identifying manipulated or synthesized content, such as watermarking systems for generated media;

(3) social and behavioral research related to manipulated or synthesized content, including human engagement with the content;

(4) research on public understanding and awareness of manipulated and synthesized content, including research on best practices for educating the public to discern authenticity of digital content; and

(5) research awards coordinated with other federal agencies and programs, including the Defense Advanced Research Projects Agency and the Intelligence Advanced Research Projects Agency, with coordination enabled by the Networking and Information Technology Research and Development Program.

**SEC. 4. NIST SUPPORT FOR RESEARCH AND STANDARDS ON GENERATIVE ADVERSARIAL NETWORKS.**

(a) IN GENERAL.—The Director of the National Institute of Standards and Technology shall support research for the development of measurements and standards necessary to accelerate the development of the technological tools to examine the function and outputs of generative adversarial networks or other technologies that synthesize or manipulate content.

(b) OUTREACH.—The Director of the National Institute of Standards and Technology shall conduct outreach—

(1) to receive input from private, public, and academic stakeholders on fundamental measurements and standards research necessary to examine the function and outputs of generative adversarial networks; and

(2) to consider the feasibility of an ongoing public and private sector engagement to develop voluntary standards for the function and outputs of generative adversarial networks or other technologies that synthesize or manipulate content.

**SEC. 5. REPORT ON FEASIBILITY OF PUBLIC-PRIVATE PARTNERSHIP TO DETECT MANIPULATED OR SYNTHESIZED CONTENT.**

Not later than 1 year after the date of enactment of this Act, the Director of the National Science Foundation and the Director of the National Institute of Standards and Technology shall jointly submit to the Committee on Science, Space, and Technology of the House of Representatives, the Subcommittee on Commerce, Justice, Science, and Related Agencies of the Committee on Appropriations of the House of Representatives, the Committee on Commerce, Science, and Transportation of the Senate, and the Subcommittee on Commerce, Justice, Science, and Related Agencies of the Committee on Appropriations of the Senate a report containing—

(1) the Directors' findings with respect to the feasibility for research opportunities with the private sector, including digital media companies to detect the function and outputs of generative adversarial networks or other technologies that synthesize or manipulate content; and

(2) any policy recommendations of the Directors that could facilitate and improve communication and coordination between the private sector, the National Science Foundation, and relevant Federal agencies through the implementation of innovative approaches to detect digital content produced by generative adversarial networks or other technologies that synthesize or manipulate content.

**SEC. 6. GENERATIVE ADVERSARIAL NETWORK DEFINED.**

In this Act, the term ''generative adversarial network'' means, with respect to artificial intelligence, the machine learning process of attempting to cause a generator artificial neural network (referred to in this paragraph as the ''generator'' and a discriminator artificial neural network (referred to in this paragraph as a ''discriminator'') to compete against each other to become more accurate in their function and outputs, through which the generator and discriminator create a feedback loop, causing the generator to produce increasingly higher-quality artificial outputs and the discriminator to increasingly improve in detecting such artificial outputs.

The bill was ordered to be read a third time, was read the third time, and passed, and a motion to reconsider was laid on the table.

## EXPRESSING THE SENSE OF THE HOUSE OF REPRESENTATIVES WITH RESPECT TO THE PRINCIPLES THAT SHOULD GUIDE THE NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY OF THE UNITED STATES

Mr. TONKO. Mr. Speaker, I ask unanimous consent that the Committee on Science, Space, and Technology; the Committee on Education and Labor; the Committee on Oversight and Reform; the Committee on Foreign Affairs; the Committee on Energy and Commerce; and the Committee on Ways and Means be discharged from further consideration of H. Res. 1250, and ask for its immediate consideration in the House.

The Clerk read the title of the resolution.

The SPEAKER pro tempore. Is there objection to the request of the gentleman from New York?

There was no objection.

The text of the resolution is as follows:

H. RES. 1250

*Resolved,*

**SECTION 1. GUIDING PRINCIPLES OF THE NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY OF THE UNITED STATES.**

(a) FINDINGS.—The House of Representatives finds the following:

(1) In general, artificial intelligence is the ability of a computer system to solve problems and to perform tasks that would otherwise require human intelligence.

(2) Artificial intelligence will transform the nature of work and nearly all aspects of the United States economy.

(3) Artificial intelligence will have immense implications for the security of the United States and its allies and partners.

(4) Investments made by the United States Government will be instrumental in the research and development of artificial intelligence and artificial intelligence-enabling technologies, as it has been for many of the world's revolutionary technologies.

(5) Developing and using artificial intelligence in ways that are ethical, reduce bias, promote fairness, and protect privacy is essential for fostering a positive effect on society consistent with core United States values.

(6) The Obama Administration released the Big Data Research and Development Initiative in 2012, Executive Order 13702 (relating to creating a national strategic computing initiative) in 2015, and the National Artificial Intelligence Research and Development Strategic Plan in 2016.

(7) The Trump Administration released Executive Order 13859 (relating to maintaining American leadership in artificial intelligence), updated the National Artificial Intelligence Research and Development Strategic Plan in 2019, and released Office of Management and Budget guidance for regulation of artificial intelligence applications in 2020.

(8) In May 2019, the Organisation for Economic Co-operation and Development (OECD) adopted the OECD Principles on Artificial Intelligence, which included the principles of inclusive growth, sustainable development and well-being, human-centered values and fairness, transparency and explainability, robustness, security and safety, and accountability.

(9) In February 2020, the European Commission began a consultation process with the release of their white paper ''On Artificial Intelligence - A European approach to excellence and trust'', which set out policy options for a coordinated European approach to artificial intelligence regulation.

(10) In June 2020, the G7 and several partners launched the Global Partnership on Artificial Intelligence to increase cooperation focused around the areas of responsible artificial intelligence, data governance, the future of work, and innovation and commercialization.

(11) Several United States allies, including Canada, Denmark, Estonia, France, Finland, Germany, the Netherlands, and South Korea, have published national artificial intelligence strategies with detailed funding commitments.

(12) In 2017, China published a national artificial intelligence strategy that detailed the Chinese Communist Party's goal to become the world's primary artificial intelligence innovation center by 2030.

(13) In 2019, Russia published a national artificial intelligence strategy and, in 2017, Russian President Vladimir Putin said that ''whoever becomes the leader in this sphere will become the ruler of the world''.

(14) In 2018, the Subcommittee on Information Technology of the Committee on Oversight and Government Reform of the House of Representatives, under the leadership of Chairman Will Hurd and Ranking Member Robin Kelly, published ''Rise of the Machines: Artificial Intelligence and its Growing Impact on U.S. Policy'' following a series of hearings on artificial intelligence with experts from academia, industry, and government, concluding that ''the United States cannot maintain its global leadership in artificial intelligence absent political leadership from Congress and the Executive Branch''.

(15) Congress serves a critical role in establishing national priorities, funding scientific research and development, supporting

emerging technologies, and sustaining cooperation with our allies to protect the national security of the United States.

(b) NATIONAL ARTIFICIAL INTELLIGENCE STRATEGY PRINCIPLES.—It is the sense of the House of Representatives that the following principles should guide the national artificial intelligence strategy of the United States:

(1) Global leadership.

(2) A prepared workforce.

(3) National security.

(4) Effective research and development.

(5) Ethics, reduced bias, fairness, and privacy.

**SEC. 2. GLOBAL LEADERSHIP.**

It is the sense of the House of Representatives that the United States should take a global leadership role in artificial intelligence.

**SEC. 3. WORKFORCE PREPARATION.**

(a) FINDINGS.—The House of Representatives finds the following:

(1) Artificial intelligence and automation will present significant challenges to workers in affected industries due to the automating of some routine and repetitive tasks, but will also create additional employment opportunities.

(2) Closing the artificial intelligence talent gap in the short and medium-term will require a targeted approach to identifying and filling roles that require the skills to build and work with artificial intelligence systems.

(3) The United States should take a leadership role in the artificial intelligence-driven economy by filling the artificial intelligence talent gap and preparing United States workers for the jobs of the future, including by prioritizing inclusivity and equal opportunity.

(4) Departments and agencies of the Federal Government are increasingly using data to administer benefits, assess outcomes, and fulfill other mission-critical activities.

(5) Effectively creating, managing, and implementing artificial intelligence related research and development grants will require technical expertise.

(6) Departments and agencies of the Federal Government will need to be able to recruit employees with technical expertise.

(7) Lifelong learning and skill acquisition can increase flexibility with respect to career opportunities.

(8) The United States will need to be able to attract the best artificial intelligence researchers and computer scientists from around the world to work in the United States.

(b) MATTERS TO CONSIDER.—

(1) EDUCATION.—It is the sense of the House of Representatives that the national competitiveness of the United States in artificial intelligence would benefit from—

(A) increased funding for Federal programs that support science, technology, engineering, mathematics, and computer science education;

(B) grant programs that continue funding the integration of ethics courses and modules into science, engineering, and computer science curricula;

(C) new education programs of study related to artificial intelligence that incorporate industry-recognized credentials, including certifications and certificates, embedded within secondary and postsecondary degree programs; and

(D) continued support for teacher preparation programs that increase the number of teachers with the ability to teach science, technology, engineering, mathematics, and computer science education.

(2) PROMOTING DIVERSITY.—It is the sense of the House of Representatives that—

(A) the inclusion of students from historically under-represented groups in existing technology education programs would benefit a diverse artificial intelligence workforce; and

(B) recruitment and retention policies with respect to under-represented communities and marginalized groups in the Federal workforce should be reviewed for the purpose of determining if such policies require modification for technology workers.

(3) ARTIFICIAL INTELLIGENCE TRAINING.—

(A) IN GENERAL.—It is the sense of the House of Representatives that the Federal Government should assess the effectiveness of current public workforce development programs with respect to the additional support such programs will need to effectively address job disruptions and job creations that result from the increased use of artificial intelligence.

(B) WORK-BASED LEARNING AND ON-THE-JOB TRAINING PROGRAMS.—It is the sense of the House of Representatives that the Federal Government should support the adoption of work-based learning and on-the-job training programs to prepare the United States workforce for an artificial intelligence-influenced economy, including by—

(i) undertaking studies to determine best practices to implement such programs; and

(ii) ensuring that there is sufficient Federal funding to support high-quality programs that coordinate with Federal workforce development programs.

(4) FEDERAL HIRING PRACTICES.—It is the sense of the House of Representatives that the Federal Government should—

(A) allow technical experts to use their skills to assist multiple departments and agencies of the Federal Government, such as the United States Digital Service;

(B) focus on the retention of non-partisan experts within the Federal Government who are working to modernize Federal information technology;

(C) include in the criteria for recruiting for artificial intelligence jobs the consideration of a multi-disciplinary set of skills, including an understanding of ethical practices with respect to the design and use of artificial intelligence systems, privacy, information security, law, and civil liberties;

(D) review hiring practices for employment in the Federal Government for the purpose of ensuring that such practices do not disqualify individuals with a less traditional background, including due to a lack of undergraduate or graduate degree attainment, who have skills that will benefit work in artificial intelligence systems management and research and development; and

(E) conduct studies with respect to best practices for skills-based hiring.

**SEC. 4. NATIONAL SECURITY.**

(a) FINDINGS.—The House of Representatives finds the following:

(1) Artificial intelligence will have immense implications for national and international security.

(2) Artificial intelligence tools and systems can augment human intelligence through human-machine collaboration and teaming across the national security ecosystem.

(3) Ensuring that the public trusts the ability of the military to ethically use artificial intelligence and that human operators in human-machine teams trust the artificial intelligence will be critical factors with respect to the successful implementation of artificial intelligence systems.

(4) The continued proliferation of national artificial intelligence strategies, plans, statements, and investments demonstrates the increase in global competition in this area.

(5) New paradigms will be required to effectively test artificial intelligence and to ensure that it is reliable and stable.

(6) Export and investment controls will be important policy tools to prevent the acquisition of sensitive artificial intelligence and artificial intelligence-enabling technologies, including hardware such as semiconductors and semiconductor manufacturing equipment, by China, Russia, and other adversaries.

(b) MATTERS TO CONSIDER.—

(1) COLLABORATION WITH FOREIGN NATIONS.—It is the sense of the House of Representatives that the United States should—

(A) leverage its alliances to promote democratic principles, foster research collaboration, and develop common standards with respect to artificial intelligence;

(B) promote the interoperability of artificial intelligence for the purpose of strengthening alliances;

(C) along with allies, take a leading role in international forums to set artificial intelligence principles, norms, and standards; and

(D) undertake efforts to engage with China and Russia with respect to—

(i) shared concerns about artificial intelligence safety; and

(ii) confidence-building by establishing crisis communications procedures designed to reduce the likelihood of unintentional use and the risk of escalation with respect to artificial intelligence systems.

(2) FOREIGN ARTIFICIAL INTELLIGENCE CAPABILITY.—It is the sense of the House of Representatives that national security agencies should consider conditions-based and capabilities-based approaches when evaluating global artificial intelligence capabilities.

(3) DEVELOPMENT AND DEPLOYMENT.—It is the sense of the House of Representatives that national security agencies should—

(A) collaborate with experts in academia, the private sector, and other departments and agencies of the Federal Government to develop best practices for testing, evaluation, validation, and verification of artificial intelligence systems;

(B) devote agency resources, including investing in research, for the purpose of promoting trustworthiness with respect to human-machine teams;

(C) engage with experts to develop guidelines for the ethical development and use of artificial intelligence systems; and

(D) prioritize the development of artificial intelligence systems to cover non-critical tasks until such systems can achieve suitable standards of reliability, interoperability, and security.

(4) EXPORT AND INVESTMENT CONTROLS.—It is the sense of the House of Representatives that the United States should collaborate with its allies to prevent the misuse of artificial intelligence systems by China, Russia, and other adversaries.

**SEC. 5. RESEARCH AND DEVELOPMENT.**

(a) FINDINGS.—The House of Representatives finds the following:

(1) Federal funding plays an important role in research and development.

(2) Federal research and development investments need to be significantly increased to ensure United States leadership in artificial intelligence.

(3) Federally supported research will play an important role in supporting artificial intelligence techniques that are critical to United States artificial intelligence leadership, including by exploring novel techniques that leverage smaller data sets to train artificial intelligence systems and making more efficient use of computing resources.

(4) Artificial intelligence advances are enabled by Federal research and development

investments in other technology sectors because United States economic competitiveness and national security will depend on strong capabilities across a range of technologies.

(5) Computing power is essential to progress in artificial intelligence development, and the amount of computing power required for artificial intelligence training runs is increasing exponentially.

(6) A new wave of technological advances could be fostered by combining and increasing access to government-owned and government-funded computing and data resources.

(7) Expanding access to digital infrastructure, such as broadband, will be essential to creating new job opportunities and stimulating the growth of new technology and innovation clusters to support United States leadership in artificial intelligence.

(8) Incentivizing research and development across the private sector, particularly from smaller companies, will further strengthen the United States innovation ecosystem.

(9) The United States is an attractive research and development partner because it is home to world-class universities, research institutes, and corporations.

(10) Decades of experience show that joint work with foreign researchers can be done with great benefit and little detriment to United States economic and national security with the implementation of proper safeguards.

(11) Artificial intelligence standards and measurement are essential to fostering artificial intelligence technologies that are safe, secure, reliable, and comport with the norms and values of the United States.

(12) Metrics are how the artificial intelligence research community guides itself and prioritizes research.

(13) Benchmark tests are necessary to understand the performance of an artificial intelligence system.

(14) Current tests for measuring artificial intelligence range from vague and conceptual to well-defined and mature.

(15) Artificial intelligence measurement methodologies are not static and will require periodic reexaminations and updates of testing methodologies to ensure that artificial intelligence systems are functioning according to best-known practices.

(16) United States leadership in global artificial intelligence standards-setting will help ensure that artificial intelligence implementations are in accordance with United States strengths and comport with the interests and values of the United States.

(17) Public engagement is necessary for developing voluntary consensus standards, guidelines, and frameworks to ensure diverse perspectives are considered.

(b) MATTERS TO CONSIDER.—

(1) FEDERAL FUNDING.—It is the sense of the House of Representatives that the Federal Government should increase investments in artificial intelligence research and development and related fields.

(2) COLLABORATION WITH OTHER ENTITIES.—It is the sense of the House of Representatives that departments and agencies of the Federal Government should collaborate—

(A) with the private sector, civil society, and academia—

(i) to ensure that the United States innovation ecosystem leads the world in artificial intelligence research and development; and

(ii) to develop voluntary consensus standards, guidelines, and frameworks that will help create shared conceptual foundations, terminology, and best practices for artificial intelligence fairness and bias mitigation; and

(B) with science funding organizations in like-minded countries to establish multilateral teams of artificial intelligence researchers from the public and private sectors to promote additional talent development and foster partnerships on artificial intelligence research and development.

(3) EXPANDING DIGITAL ACCESS.—It is the sense of the House of Representatives that the Federal Government should—

(A) expand access to broadband in rural and underserved areas;

(B) expand the availability of affordable graphics processing units and high-performance computers in rural and underserved areas;

(C) improve digital infrastructure in the United States; and

(D) make data created by federally-funded scientific and technical research publicly available with appropriate privacy protections to provide artificial intelligence researchers with new data sets to train their systems.

(4) NATIONAL COMPUTING AND DATA RESOURCE.—It is the sense of the House of Representatives that Congress should consider establishing a national computing and data resource.

(5) ACCESS TO NATIONAL LABORATORIES.—It is the sense of the House of Representatives that the existing supercomputing labs at the national laboratories and technology centers of the Department of Energy should expand opportunities for academics and researchers to access such labs for artificial intelligence research and research related to artificial intelligence.

(6) TAX INCENTIVES.—It is the sense of the House of Representatives that Congress should examine whether targeted incentives and reforms to the Internal Revenue Code of 1986 would increase private sector research and development, particularly with respect to small cap corporations.

**SEC. 6. ETHICS, REDUCED BIAS, FAIRNESS, AND PRIVACY.**

(a) FINDINGS.—The House of Representatives finds the following:

(1) The rise of artificial intelligence has great potential to improve quality of life for individuals in the United States, provided it is developed and used in a manner that is ethical, reduces bias, promotes fairness, and protects privacy.

(2) A diverse artificial intelligence workforce is important for mitigating bias.

(3) The United States is uniquely positioned to leverage its diverse workforce to lead in artificial intelligence.

(4) The starting point for Federal oversight of artificial intelligence should be to review existing regulatory frameworks.

(5) Regulatory sandboxes, in general, refer to regulatory structures where a participant obtains limited or temporary access to a market in exchange for reduced regulatory uncertainty, and can be used to test a product designed to mitigate unintended bias or promote fairness in a small-scale environment and under the supervision of regulators.

(6) Federal programs should have necessary safeguards and oversight processes.

(7) Artificial intelligence regulatory approaches should consider the level of risk associated with different artificial intelligence applications.

(b) MATTERS TO CONSIDER.—

(1) BIAS MITIGATION.—It is the sense of the House of Representatives that departments and agencies of the Federal Government should—

(A) support technical and non-technical research and development to address potential bias, fairness, and privacy issues in artificial intelligence;

(B) improve access to a broad range of non-sensitive government data assets to help train artificial intelligence systems;

(C) implement title II of the Foundations for Evidence-Based Policymaking Act of 2018 (Public Law 115–435; 132 Stat. 5529);

(D) develop policies to identify the data used to train artificial intelligence algorithms as well as data analyzed by artificial intelligence algorithms and systems in use by departments and agencies; and

(E) further develop and release to the public available benchmark data assets with the proper safeguards to protect privacy, mitigate bias, and promote inclusivity.

(2) REGULATION AND LEGISLATION REVIEW.—It is the sense of the House of Representatives that congressional committees should—

(A) review the range of existing Federal regulations and laws that potentially apply to artificial intelligence;

(B) determine which laws apply to artificial intelligence;

(C) determine if any gaps in appropriate legislation and regulation exist and how such gaps could be addressed;

(D) advance Federal privacy reforms that build trust, prevent harm, and maintain United States global leadership in artificial intelligence; and

(E) conduct regular oversight of artificial intelligence policies in the executive branch within their jurisdiction.

(3) FEDERAL FUNDING.—It is the sense of the House of Representatives that Congress should support funding for departments and agencies of the Federal Government interested in adopting programs, including regulatory sandboxes, for the purposes of testing artificial intelligence tools in limited markets.

The resolution was agreed to.

A motion to reconsider was laid on the table.

## HONORING JOHNNY BLAKELY

(Mr. GREEN of Tennessee asked and was given permission to address the House for 1 minute.)

Mr. GREEN of Tennessee. Mr. Speaker, I rise today to honor the decades-long service of a public servant who embodies what makes Tennessee the Volunteer State, Mr. Johnny Blakely.

After 18 years faithfully representing the Congressman for Tennessee's Seventh District, Johnny will begin his next chapter of life in the new year.

For 24 years, he served on the school board, including 17 years as chairman. Johnny also served as vice mayor of his hometown.

He and Linda, his charming wife of 56 years, have three children—Ross, Lora, and Jeremy—and seven grandchildren.

On behalf of the United States Congress, I am proud to congratulate Johnny Blakely on his retirement and express our gratitude for his 18 years of service to Tennessee's Seventh District.

Mr. Speaker, I rise today to honor the decades-long service of a public servant who embodies what makes Tennessee the Volunteer State, Mr. Johnny Blakely.

After 18 years faithfully representing the member of Congress for Tennessee's Seventh District, Johnny will begin his next chapter of life in the new year.

Johnny grew up in McNairy County in west Tennessee, where his mother diligently raised a family of five while also working in the local shoe factory. After a thirty-five year career at